CLAIMS

What is claimed is:

1. A poly amic acid precursor comprising at least one anhydride and at least one diamine in a cosolvent of tetrahydrofuran and N-methylpyrrolidinone.

2. The poly amic acid precursor of claim 1 wherein said tetrahydrofuran is in an amount ranging from about 1% to about 90% by volume of tetrahydrofuran and N-methylpyrrolidinone.

3. The poly amic acid precursor of claim 1 wherein said tetrahydrofuran is in an amount ranging from about 60% to about 90% by volume of tetrahydrofuran and N-methylpyrrolidinone.

4. The poly amic acid precursor of claim 1 wherein said at least one anhydride is a combination of 4,4'-oxydiphthalic anhydride and 3,3',4,4'-biphenyltetracarboxylic dianhydride.

5. The poly amic acid precursor of claim 4 wherein the mole ratio of 3,3',4,4'-biphenyltetracarboxylic dianhydride to 4,4'-oxydiphthalic anhydride ranges from about 25% to about 75% 3,3',4,4'-biphenyltetracarboxylic dianhydride.

6. The poly amic acid precursor of claim 4 wherein the mole ratio of 3,3',4,4'-biphenyltetracarboxylic dianhydride to 4,4'-oxydiphthalic anhydride is about 50% 3,3',4,4'-biphenyltetracarboxylic dianhydride.

7. The poly amic acid precursor of claim 1 wherein the diamine is 3,4'-oxydianiline.

8. The poly amic acid precursor of claim 1 further comprising at least 1 weight % of an inorganic filler selected from the group consisting of mica, silica, calcium carbonate, calcium phosphate, calcium silicate, talc, and a combination thereof.

9. A polyamic acid precursor comprising:

3,3',4,4'-biphenyltetracarboxylic dianhydride and 4,4'-oxydiphthalic anhydride in a molar ratio of about 50% 3,3',4,4'-biphenyltetracarboxylic dianhydride;

3,4'-oxydianiline in a molar ratio of about 50% 3,4'-oxydianiline to 3,3',4,4'-biphenyltetracarboxylic dianhydride and 4,4'-oxydiphthalic anhydride; and

a cosolvent comprising about 70% tetrahydrofuran and about 30% N-methylpyrrolidinone by volume of cosolvent.

10. A method for producing a polyimide comprising:

heating a poly amic acid precursor comprising at least one anhydride and at least one diamine in a cosolvent of tetrahydrofuran and N-methylpyrrolidinone, wherein said tetrahydrofuran is in an amount ranging from about 1% to about 90% by volume of tetrahydrofuran and N-methylpyrrolidinone, whereby a portion of the cosolvent is removed and a polyimide is formed.

11. The method of claim 10 further comprising adding at least 1 weight % of an inorganic filler selected from the group consisting of mica, silica, calcium carbonate, calcium phosphate, calcium silicate, talc, and a combination thereof to said poly amic acid precursor.

12. The method of claim 10 wherein the at least one anhydride is 4,4'-oxydiphthalic anhydride and 3,3',4,4'-biphenyltetracarboxylic dianhydride and the mole ratio of 3,3',4,4'-biphenyltetracarboxylic dianhydride to 4,4'-oxydiphthalic anhydride ranges from about 25% to about 75% 3,3',4,4'-biphenyltetracarboxylic dianhydride.

13. The method of claim 10 wherein the diamine is 3,4'-oxydianiline.

14. A polyimide laminate comprising:

a polyimide layer; and

a metal foil, wherein said polyimide laminate is produced by casting a polyamic acid precursor comprising at least one diamine and at least one anhydride in a cosolvent of tetrahydrofuran and N-methylpyrrolidinoneonto a surface of the metal foil, followed by heating the polyamic acid solution to form the polyimide layer.

15. The polyimide laminate of claim 14 wherein said poly amic acid precursor contains an amount of tetrahydrofuran ranging from about 1% to about 90% by volume of solvent of tetrahydrofuran and N-methylpyrrolidinone.

16. The polyimide laminate of claim 14 wherein said polyamic acid precursor further contains at least 1 weight % of an inorganic filler selected from the group consisting of mica, silica, calcium carbonate, calcium phosphate, calcium silicate, talc, and a combination thereof.

17. The polyimide laminate of claim 14 wherein the at least one anhydride comprises 4,4'-oxydiphthalic anhydride and 3,3',4,4'-biphenyltetracarboxylic dianhydride.

18. The polyimide laminate of claim 17 wherein the mole ratio of 3,3',4,4'-biphenyltetracarboxylic dianhydride to 4,4'-oxydiphthalic anhydride ranges from about 25% to about 75% 3,3',4,4'-biphenyltetracarboxylic dianhydride.

19. The polyimide laminate of claim 17 wherein the mole ratio of 3,3',4,4'-biphenyltetracarboxylic dianhydride to 4,4'-oxydiphthalic anhydride is about 50% 3,3',4,4'-biphenyltetracarboxylic dianhydride.

20. The polyimide laminate of claim 14 wherein the diamine is 3,4'-oxydianiline.

21. The polyimide laminate of claim 14 wherein the poly amic acid precursor is quantitatively pumped and fed through a slit die and cast onto a surface of a metal foil.

22. The polyimide laminate of claim 14 wherein the metal foil is copper.

23. A process for producing a polyimide laminate comprising the steps of:

adding a poly amic acid precursor onto a surface of a substrate, wherein the polyamic acid precursor comprises at least one diamine and at least one anhydride in a cosolvent of tetrahydrofuran and N-methylpyrrolidinone, wherein said tetrahydrofuran is in an amount ranging from about 1% to about 90% by volume of tetrahydrofuran and N-methylpyrrolidinone; and

heating the poly amic acid precursor on the substrate to remove tetrahydrofuran and N-methylpyrrolidinone therby forming a polyimide laminate.

24. The process of claim 23 wherein the the tetrahydrofuran is an amount ranging from about 10% to about 90% tetrahydrofuran by volume of tetrahydrofuran and N-methylpyrrolidinone.

25. The process of claim 23 wherein the poly amic acid precursor contains about 90% tetrahydrofuran and about 10% N-methylpyrrolidinone.

26. The process of claim 23 wherein the step of heating the poly amic acid precursor solution removes at least about 75% of the solvent.